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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,968	04/13/2004	Dieter Winkler	002935 C1 USA/PDC/ICT	5313

7590 08/10/2004

APPLIED MATERIALS, INC.
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EXAMINER

FERNANDEZ, KALIMAH

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/823,968

Applicant(s)

WINKLER ET AL.

Examiner

Kalimah Fernandez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4-13-04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

1. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by US Pat No 5,420,433 issued to Oae et al.
2. Oae et al teach a main vacuum chamber (1) housing a stage (3) therein and connected to a vacuum pump (2).
3. Oae et al teach a load lock (1c) for loading a specimen into the main vacuum chamber (col.2, lines 9-19).
4. Oae et al teach a minicolumn (1b) non-translatably positioned inside the main chamber (1) (see fig. 3; col.1, lines 52-66).
5. Oae et al teach a vacuum pump (2) situated inside the main vacuum chamber (1) and external to and connected to the minicolumn (600) (col.1, lines 37-42). The phrase “situated inside”

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has been interpreted to require the vacuum pump be a unitary part of the main chamber as described in Oae et al.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 4,420,686 issued Onoguchi et al and in view of "Novel high brightness miniature electron gun for high current e-beam applications" authored by Burstert et al and US Pat No 5,912,096 issued to Hada.

3. Onoguchi et al teach main chamber (1) housing a stage (8) therein (see fig.2).

4. Onoguchi et al teach a plurality of columns (3,3',3'') positioned inside the main chamber (1) (col.2, lines 53-59).

5. Onoguchi et al does not teach mini-column having a plurality of conducting electrodes and at least one insulator.

6. However, Burstert et al teach the desirability of a mini-column having a plurality of conducting electrodes and at least one insulator (see abstract and pg.100, lines 1-10).

7. It would have been obvious to an artisan having ordinary skill at the time of the invention to incorporate Burstert et al into Onoguchi because Burstert et al teach the advantages of cost-effectiveness and ease-of-use (see pg. 100, lines 1-10).

8. Moreover, Onoguchi et al does not teach a load lock and vacuum pump connected to the main chamber (1).

9. However, the use of a load lock is widely known in the art as illustrated in Hada. It is indeed conventional to employ a load lock chamber in electron beam apparatus, which necessarily require relatively high vacuum condition as described in col.1, lines 17-57 of Hada. Therefore, it would have been obvious to an artisan having ordinary skill in the art modify Onoguchi by employing a load lock because the advantages of a load lock system are notoriously known in the art as described in Hada.

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10. As per claim 3, Onoguchi et al teach at least one of the mini-columns is situated inside the main vacuum chamber at a tilt with respect to a perpendicular to a surface of the stage (see fig.2).

11. As per claim 4, Onoguchi et al teach the tilt is variable (col.6, lines 9-14).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat No 5,442,183 issued to Matsui et al teach a compact electron beam apparatus; US Pat No 6,252,412 issued to Talbot et al teach a mini-column inside a main chamber. US Pat No 3,881,125 issued to Baker et al is considered relevant. JP 11260298 issued to Ouchi teaches a vacuum pump inside a sample chamber. JP 5-128988 issued to. US Pat No 5,442,183 issued to Matsui et al is considered relevant to the claimed invention. US Pat No 5,734,164 issued to Sanford teach tilting minicolumn. US Pat No 4,851,768 issued to Yoshzawa et al teach a plurality of tilting electron columns. US Pat No 4,963,823 issued to Otto et al teach a pump inside the sample chamber (see fig.1). US Pat No 4,817,053 issued to Ikeda et al is considered relevant. US

PAT No 6,522,776 issued to Ehrichs teach a minicolumn and stage housed in a main vacuum chamber (see fig. 5). US Pat No 4,725,736 issued to Crewe teaches the notoriously old construction of a minicolumn having electrodes and insulators (see col.4, lines 44-57). US Pat No 5,093,572 issued to Hosono teach a plurality of electron columns. Lastly, US Pat No 5,401,974 issued to Oae et al; US Pat No 6,504,393 issued to Lo et al; US Pat No 6,114,681 issued to Komatsu; US Pat No 5,869,833 issued to Richardson et al; US Pat No 6,740,889 issued to Winkler et al; US Pat No 6,452,174 issued to Hirose et al; US Pat No 4,939,364 issued to Ishitani et al are considered relevant to the claimed invention.

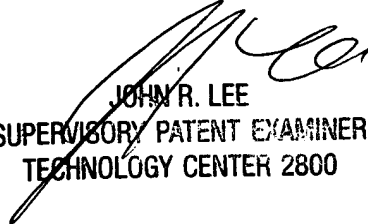
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 571-272-2470. The examiner can normally be reached on Mon-Tues 6:30-3:30; Wed-Thurs 8-5 and Fri.9am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KF


JOHN R. LEE
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